National Institute of Environmental Health Sciences

Climate change, plant diseases and food security: An overview

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Abstract:

Global food production must increase by 50% to meet the projected demand of the world's population by 2050. Meeting this difficult challenge will be made even harder if climate change melts portions of the Himalayan glaciers to affect 25% of world cereal production in Asia by influencing water availability. Pest and disease management has played its role in doubling food production in the last 40 years, but pathogens still claim 10–16% of the global harvest. We consider the effect of climate change on the many complex biological interactions affecting pests and pathogen impacts and how they might be manipulated to mitigate these effects. Integrated solutions and international co-ordination in their implementation are considered essential. Providing a background on key constraints to food security, this overview uses fusarium head blight as a case study to illustrate key influences of climate change on production and quality of wheat, outlines key links between plant diseases, climate change and food security, and highlights key disease management issues to be addressed in improving food security in a changing climate.

Source: Ask your librarian to help locate this item.

Resource Description

Communication: ☑

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience: ☑

audience to whom the resource is directed

Policymaker

Exposure : ☑

weather or climate related pathway by which climate change affects health

Food/Water Security, Food/Water Security

Food/Water Security: Agricultural Productivity, Nutritional Quality

Geographic Feature: ☑

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☑

resource focuses on specific location

Global or Unspecified

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Malnutrition/Undernutrition

Intervention: ☑

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology: ☑

type of model used or methodology development is a focus of resource

Cost/Economic, Exposure Change Prediction

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status, Workers

Resource Type: ☑

format or standard characteristic of resource

Review

Resilience: ☑

capacity of an individual, community, or institution to dynamically and effectively respond or adapt to shifting climate impact circumstances while continuing to function

A focus of content

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content